

(19) World Intellectual Property  
Organization  
International Bureau



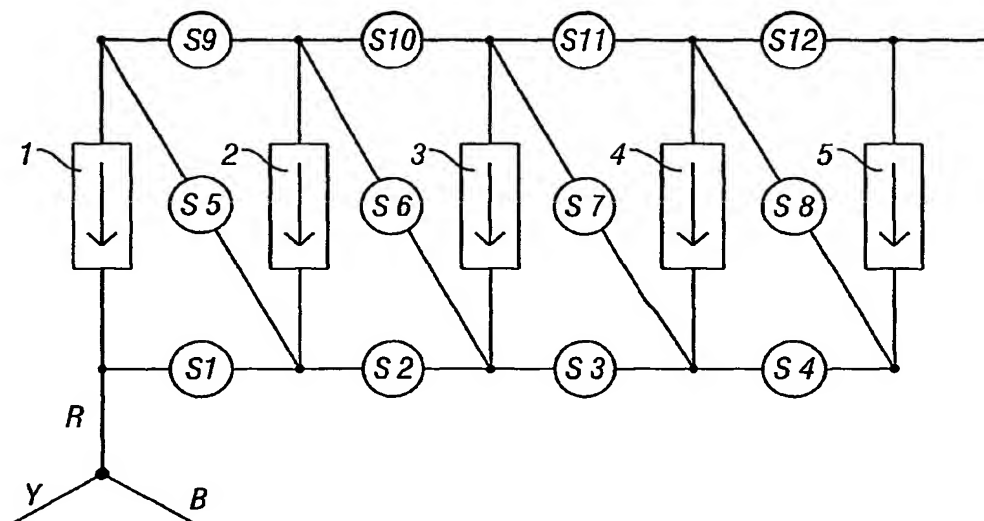
(43) International Publication Date  
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number  
**WO 2005/043740 A2**

- (51) International Patent Classification<sup>7</sup>: **H02P**
- (21) International Application Number:  
PCT/GB2004/004512
- (22) International Filing Date: 22 October 2004 (22.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0324785.5 24 October 2003 (24.10.2003) GB
- (71) Applicant (for all designated States except US): **ELECTRONICA PRODUCTS LIMITED** [GB/GB]; Cardiff Business Technology Centre, Senghennydd Road, Cardiff CF24 4AY (GB).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **SHIRAZEE, Nabeel, Ahmed** [GB/GB]; 11 Lisvane Street, Cathays, Cardiff CF24 4LH (GB).
- (74) Agent: **EVANS, Huw, David, Duncan**; Urquhart-Dykes & Lord LLP, Three Trinity Court, 21-27 Newport Road, Cardiff CF24 0AA (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MAGNETIC GEARING OF PERMANENT MAGNET BRUSHLESS MOTORS



(57) Abstract: A permanent magnet brushless 3-phase motor comprises windings R, Y, B, each divided into a plurality of sections 1-5 and switch means S1-S12 for selectively connecting the section of the respective winding *e.g.* R in series and/or parallel with all other sections of that winding R. Control means are provided for actuating the switch means S1-S12 to connect the winding sections 1-5 in different configurations whilst the motor is running to alter the speed/torque characteristics of the motor.